

REMARKS

In light of the above amendatory matter and remarks to follow, reconsideration and allowance of this application are respectfully solicited.

In the Final Office Action under reply, claims 1-17 and 19-25, all the claims that were presented in this application, were rejected as being obvious primarily in view of the combination of Hennes (U.S. Patent 6,665,985, cited in previous Office Actions) and Deering (U.S. Patent 6,956,576, cited in the previous Office Action) and Kimpara (newly cited U.S. Patent 5,310,962). Claims 1-4, 7-10, 12, 17 and 21-25 were stated by the Examiner to be unpatentable over this combination of Hennes, Deering and Kimpara. The Examiner added Imagawa (U.S. Patent 6,353,764, cited in the previous Office Action) to this combination to reject claim 5, 6, 19 and 20; he added Lu (U.S. Patent 5,771,307, cited in the previous Office Action) to the Hennes-Deering-Kimpara combination to reject claim 11; he added Stevenson (U.S. Patent 5,255,326, cited in the previous Office Action) to the Hennes-Deering-Kimpara combination to reject claim 13; he added Alberts (U.S. Patent 4,424,511, cited in the previous Office Action) to the Hennes-Deering-Kimpara combination to reject claims 14 and 15; and he added King (U.S. Patent 3,600,516, cited in the previous Office Action) to the Hennes-Deering-Kimpara combination to reject claim 16.

It is respectfully submitted, claims 1-17 and 19-25, as presented previously, are patentably distinct over the combination of Hennes, Deering and Kimpara, whether or not this combination is further combined with the secondary references cited by the Examiner. Nevertheless, to expedite the prosecution of the present application to its successful conclusion, independent claims 1, 7, 21, 22, 23 and 24 are amended to make explicit that which had been

implicitly claimed all along. These amendments are made for cosmetic purposes and to improve the form of the claims. Claim 25 is not amended.

It is respectfully submitted, these claims, and especially the independent claims, are patentably distinct over the cited prior art and are in condition for allowance.

As the Examiner recognizes, the present invention is concerned with determining an audience response to, for example, displayed content, by detecting both the overall state of the audience and the individual states of members of the audience, as a function of the content being displayed. Based on these detected audience states and the displayed content, the apparatus estimates whether the determined audience response is one of a predetermined number of types of responses. See, for example, the response types J1 to J5, discussed at, *inter alia*, paragraphs [0170] to [0175] of the published version of the instant application.

In particular, the overall state of the audience is estimated by detecting the motion vectors of members of the audience, information indicative of particular response states of respective audience members and load information indicative of the response load condition of respective audience members. Based on the load conditions of the members of the audience, which represent individual members' response states, the estimated overall response state and the content being displayed, the apparatus estimates whether the audience response is one of a predetermined number of types of responses.

It is respectfully submitted, the detection of the motion vectors of members of the audience is not suggested by Hennes, Deering or Kimpara. The Examiner recognizes that neither Hennes nor Deering detects motion vectors; and for this reason, the Examiner now cites Kimpara for an alleged teaching of this feature. Applicants submit that Kimpara does not describe detecting motion vectors of individual audience members; and to obviate an unintended

interpretation of Applicants' claims, the independent claims are amended to make it clear that an image of the audience members is produced and the motion vectors are detected "as a function of [the] movement of individual members in said image." This is particularly claimed in claim 1 -- and this is not contemplated by the combination of Hennes and Deering and Kimpara. Claim 1 recites:

- ... producing an image of members of said audience and detecting motion vectors as a function of movement of individual members in said image, information indicative of a respective one of plural response states of said individual members and load information indicative of a respective response load condition of said individual members, thereby estimating the overall response state of an audience;
- .... detecting individual load conditions of the members of the audience, thereby representing the individual response states of the members of the audience
- .... supplying auxiliary information indicating whether the content currently is displayed and, if so, whether said content is video or audio content and, if video content, said auxiliary information is indicative of a scene in said video content;
- .... determining the audience response on the basis of the detected overall state of said audience, the detected load conditions of said members, and said supplied auxiliary information, ... for estimating whether the determined audience response is one of a predetermined number of types of responses.

These features are not found in Hennes or Deering or Kimpara. Hennes describes a computer-driven show control system 500 that includes sensors 510 for sensing the action of an audience, such as audience motion or sound, to alter the display of the program in accordance with the data derived from sensors 510 to thereby enable the audience to influence the display of subsequent images (Hennes, col. 6, lines 26-45). Sensors 510 are motion-sensors or beam-interrupt devices to detect general audience motion and position, and microphones receive audience sounds (col. 6, lines 45-49). The show control device 520 (Hennes Fig. 5A) is fed with information from the

sensors to control the program to be played. Hennes does not detect motion vectors. He does not detect motion vectors as a function of movement of individual members in the image of the audience. The detection of motion, which Hennes describes, is not the detection of *motion vectors*. The Examiner recognizes this and, therefore, relies upon Kimpara for an alleged teaching of Applicants' claimed motion vector detection.

Hennes does not detect or receive load information indicative of the load condition of individual audience members. The Examiner recognizes this deficiency of Hennes and relies upon Deering for an alleged teaching of such load detection.

Hennes does not use information indicating whether the content is displayed and, if so, whether that content is video or audio and, moreover, if the displayed content is video, an indication of a scene in the video content. This is specifically recited in claim 1 and, as mentioned in Applicants' amendment filed December 12, 2007, is described at, for example, paragraphs [0069], [0070], [0190], [0191], and [0209] of Applicants' published application. Nor does Hennes estimate whether the audience response is "one of a predetermined number of types of responses." This is described in Applicants' published application as, for example, response J1, J2, J3, J4 or J5.

Applicants recognize the Examiner has construed Hennes to suggest auxiliary information that indicates the content currently displayed. But, Hennes does not suggest that the "auxiliary information is indicative of a scene in said video content," as recited by claim 1. In this regard, the Examiner contends that to present a continuous series of images, Hennes' processor must consider the currently displayed content because the audience response determination is made for a specific subset of subsequent images that follow the currently displayed content. Applicants' representative respectfully disagrees with this analysis of

Hennes. Hennes changes his images without regard to what those images happen to be. The particular scene that is displayed is immaterial to the way in which Hennes controls his display.

Deering was fully described in the amendment filed December 12, 2007. Deering matches the number of samples in an area on a display device with the focus of a viewer's eye, which Deering calls the point of foveation. A gaze tracking unit (col. 6, lines 31-47) is used to locate the viewer's point of foveation. This point of foveation has nothing to do with the viewer's response. It simply locates the focus of the viewer's eye. There is no suggestion in Deering to use the point of foveation or any element in Deering's gaze tracking unit to detect the response state of an audience or the response state of individual members of the audience, where the response state is the response to displayed content. Rather, Deering simply identifies the point of foveation of an individual user to display an image on the user's computer screen with more samples at the point of foveation than at other points on the screen.

Kimpara varies the acoustics, such as musical tone or tempo, in accordance with the movement of an image. It is believed Kimpara's first embodiment, described at col. 3, line 30 to col. 5, line 15, is more relevant. As described thereat, the outline of an image is obtained; and the "balancing point" of the moving image that is surrounded by the outline is calculated. It is believed the "balancing point" of the outlined image is the center of gravity of that image. Motion is detected if there is variation in the balancing point. If the balancing point moves, Kimpara determines whether that balancing point turns through a U-turn and, if so, the tempo of the music is changed. But, sensing variation in the balancing point of an outlined image is not the detection of a motion vector. Furthermore, a single outline in an image is not an image of members of an audience. Consequently, sensing variation in Kimpara's balancing point is quite different from detecting motion vectors as a function of movement of individual members in the

image. It is clear from Kimpara's use of a balancing point that one and only one object in an image can be used; and Kimpara senses movement of only that one object. Hence, one would not turn to Kimpara to learn how to sense motion vectors of the individuals that make up an audience.

If Hennes is modified by Deering and Kimpara, it is respectfully submitted that the logical result of such a combination would be the determination in Hennes of the point of foveation of audience members by using Deering's teachings, resulting in a heavier concentration by Hennes of pixels at that point of foveation, and the sensing of movement of but a single member of Hennes' audience. There still would be no suggestion of Applicants' claimed invention.

For these reasons, claim 1 is not rendered obvious by the combination of Hennes and Deering and Kimpara. Accordingly, the withdrawal of the rejection of claim 1 is respectfully requested.

Claims 7 and 21-24 are independent claims that include many of the same limitations found in claim 1 and discussed above. For example, claim 7 calls for detecting motion vectors as a function of movement of individual members in the image of the audience, detecting the response state of individual members of the audience, detecting individual response load conditions of the audience members, using the detected response load conditions along with the detected overall response state of the audience and with the auxiliary information indicating the currently displayed content to estimate whether the determined audience response is a particular type of response. In addition, claim 7 controls the operation of the content playback means based on the type of audience response that is determined. As mentioned above, although Hennes selects images in response to audience motions and/or sounds, there is no suggestion in

this reference, even when supplemented by Deering and Kimpara, to estimate the type of audience response and to control images in response to that type of audience response. Hennes does not suggest that the image is controlled one way if the audience response is clapping; or that the image is controlled in another way if the audience response is singing; or that the image is controlled in yet another way if the audience response is cheering, etc.

Accordingly, Hennes and Deering and Kimpara are not capable of rendering Applicants' claim 7 obvious; and the withdrawal of this rejection is respectfully requested.

Claim 21 is directed to the method performed by the apparatus of claim 1; and claim 22 is directed to the method performed by the apparatus of claim 7. The aforenoted elements of claims 1 and 7 are recited in claims 21 and 22, respectively. Hence, claims 21 and 22 are patentable over the combination of Hennes and Deering and Kimpara for the reasons discussed above.

Claim 23 is directed to a data recording medium on which is recorded a program that performs the method of claim 21. Similarly, claim 24 is directed to a data recording medium on which is recorded a program that performs the method of claim 22. Since claims 23 and 24 thus recite the same elements found in claims 21 and 22, claims 23 and 24 are patentable over the combination of Hennes and Deering and Kimpara for the reasons discussed above.

Claims 2-6, 11 and 13-16 depend from claim 1 and, by reason of their dependencies, incorporate the recitations of claim 1. These claims thus are patentable over Hennes and Deering and Kimpara for the very reasons presented above. The Examiner has added Imagawa (U.S. Patent 6,353,764) to this combination to allegedly provide a teaching of stepping force detectors. But Imagawa monitors walking patterns or weight, as in a scale. Other than Applicants, why would one use a weight-measuring scale to indicate the response state of audience members? To

suggest that it would be obvious to do so is a clear suggestion of prohibited hindsight reconstruction of the prior art.

The Examiner relies on Lu (U.S. Patent 5,771,307) as an alleged teaching of a device to reduce the effect of played back video on detecting the overall bodily state of the audience, thereby accurately detecting the overall response state of the audience. But Lu is concerned with accurately recognizing an individual. Lu fails to recognize the problem of played back video interfering with detecting the overall response state of the audience. Other than Applicants' teaching, why would one combine a viewer recognition device with audience motion and sound detection in the virtual theater design of Hennes?

The Examiner relies on Stevenson (U.S. Patent 5,255,326) as an alleged teaching of a device to reduce the effect of played back sound on the collected sound from the audience, thereby accurately detecting the overall response state of the audience. But Stevenson is concerned with accurately recognizing voice commands from specific individuals. Stevenson fails to recognize the problem of played back sound interfering with detecting the actual audience sound and, thus, accurately detecting the response state of the audience. Why would one combine a command recognition device with the audience sound detection in the virtual theater design of Hennes?

The Examiner relied upon King (U.S. Patent 3,600,516) as an alleged teaching of filtering sound by bandpass filters. King was combined with Hennes and Deering and Kimpara to reject Applicants' claim 16. But, claim 16 detects the overall state of the audience based on the sound passed through a bandpass filter. King has nothing to do with detecting the state of an audience. Why would one use King's filters with Hennes, Deering and Kimpara? How would

King's filters be used? How would those filters be used to detect the overall state of an audience?

It is respectfully submitted, to reject the dependent claims, individual references having nothing to do with sensing, determining or estimating an audience's response to content, have been combined with other references in what seems to be nothing more than a piecemeal fashion, using Applicants' disclosure as a guide for that combination. This is mere hindsight; and it is axiomatic, hindsight cannot be relied upon to reconstruct the prior art in a manner not contemplated by that prior art -- as in the present case.

Claim 25 specifies the types of audience responses that are estimated. While claim 25 was grouped with claims 1-4, 7-10, 12, 17 and 21-24 in the rejection set out at section 3, pages 2-6, of the Final Rejection, the basis for rejecting claim 25 is not explained. It is respectfully submitted, the cumulative teachings of the prior art relied upon in the Final Rejection fails to describe, *inter alia*,

wherein said determination means for determining the audience response comprises an audience state determination unit for estimating whether (i) most of the members of the audience are intently watching or listening to the content, (ii) most of the members of the audience are clapping their hands or singing along with the sound of the content, (iii) most of the members of the audience are clapping their hands or shouting, (iv) most of the members of the audience are applauding or cheering, or (v) most of the members of the audience are standing,

as recited by claim 25.

Therefore, in view of the foregoing, the withdrawal of the rejections of claims 1-17 and 19-25 and the issuance of the Notice of Allowance of this application are respectfully requested.

Statements appearing above in respect to the disclosures in the cited references represent the present opinions of the undersigned attorney and, in the event the Examiner disagrees with

any of such opinions, it is respectfully requested that the Examiner specifically indicate those portions of the references providing the basis for a contrary view.

Please charge any additional fees that may be needed, and credit any overpayment, to our Deposit Account No. 50-0320.

Respectfully submitted,

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